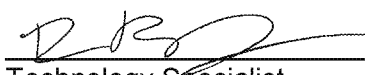


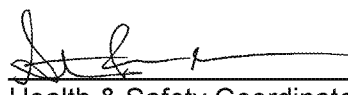
Title: Soil Processing

[Method: ASTM D6323-12, ITRC Guidance Document, Soil Fractionation Method for Michigan]

Approvals (Signature/Date):



Technology Specialist 12/03/14
Date



Health & Safety Coordinator 12/03/14
Date



Quality Assurance Manager 01/22/15
Date



Technology Director 01/15/15
Date

This SOP was previously identified as NC-OP-044 Rev. 0, dated 11/27/13

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1. SCOPE AND APPLICATION

- 1.1. These disaggregation, mixing and particle size reduction techniques are applicable to a wide range soil, sediment, tissue, water, and waste samples. Care must be taken to match the appropriate technique with the matrix, target analytes and quality objectives.
- 1.2. This document accurately reflects current laboratory Standard Operating Procedures (SOP) as of the date above. All facility SOPs are maintained and updated as necessary.
- 1.3. **NOTE:** If foreign or quarantined solids are received, refer to SOP NC-SM-019 Canton Foreign Soils, current revision, and contact your Environmental Health and Safety Coordinator for proper handling instructions

2. SUMMARY OF METHOD

- 2.1. Air-Dried Soil Processing: The sample is air dried at room temperature and disaggregated to break clumps into a fine powder to facilitate obtaining a representative sub-sample and improving analyte extraction efficiency.
- 2.2. Soil Fractionation for Lead: Applicable to lead impacted soil and designed to distinguish the lead in the fine soil fraction from the coarse soil fraction.
- 2.3. Incremental Sample Wet Mixing Process: Applicable to mixing incremental samples into a single composite. These samples are NOT air dried, but rather water is added to facilitate mixing in a heavy-duty mixer.

3. DEFINITIONS

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- 3.1. Refer to the glossary in the TestAmerica Canton Quality Assurance Manual (QAM), current version.
- 3.2. Mix: To thoroughly blend the sample and reduce the analyte concentration differences between different parts of the overall sample. It is most effective when the particle size and density differences within the sample are small.
- 3.3. Incremental Sampling Methodology: A structured composite sampling and processing protocol that reduces data variability and provides a reasonably unbiased estimate of the mean contaminant concentrations in an area/volume of soil targeted for sampling. ISM provides representative samples of specific soil areas/volumes defined as decision units (DUs) by collecting numerous increments of soil (typically 30-100 increments) that are combined, processed, and subsampled according to specific protocols.
- 3.4. Grinding: A generic term for soil disaggregation or milling (ITRC Guidance Appendix E). The term grinding does not in itself represent any specific process.
- 3.5. Disaggregation: The act of breaking the soil clumps into individual small particles but keeping the small pebbles and hard crystalline particles intact (ITRC Guidance Appendix E).
- 3.6. Milling: Complete particle size reduction of all soil components including hard crystalline materials to a defined maximum particle size (e.g. <250 µm or <75 µm) (ITRC Guidance Appendix E).
- 3.7. Sample: For laboratory technicians, the sample is all the material delivered to the laboratory in a container collected by the field crew.
- 3.8. Subsample: The small representative amount removed from a field sample that selected for final analysis. Also referred to in some SOPs as "the aliquot".

4. INTERFERENCES

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- 4.1. Method interferences may be caused by contaminants in solvents, reagents, glassware, and other processing apparatus that lead to discrete artifacts. All of these materials must be routinely demonstrated to be free from interferences under conditions of the analysis by running laboratory method blanks as described in the Quality Control section of each analytical SOP. Specific selection of reagents may be required to avoid introduction of contaminants (i.e. samples being analyzed for VOCs should generally not come into contact with equipment that has been solvent-rinsed with acetone or methylene chloride).
- 4.2. Metallic components of particle size reduction equipment can contribute some metal content to the solid samples. Hence carbon steel components are usually preferable to stainless steel when necessary to minimize contamination from chromium, nickel and molybdenum. Some contamination from iron is common.
- 4.3. Particle size reduction equipment blanks should be generated before use. The type of blank generated may vary for each piece of equipment, and may be solid or aqueous in nature.

5. SAFETY

- 5.1. Employees must abide by the policies and procedures in the Corporate Environmental Health and Safety Manual, the Facility Addendum to the Corporate EH&S Manual, and this document.
- 5.2. Eye protection that protects against splash, laboratory coat, and appropriate gloves must be worn while samples, standards, solvents, and reagents are being handled. Cut-resistant gloves must be worn doing any other task that presents a strong possibility of getting cut. Disposable gloves that have been contaminated will be removed and discarded; other gloves will be cleaned immediately.
- 5.3. Exposure to chemicals must be maintained **as low as reasonably achievable**; therefore, unless they are known to be non-hazardous, all samples must be opened, transferred and prepared in a fume hood, or under other means of mechanical ventilation where possible. All samples with stickers that read "Caution/Use Hood!" **must** be opened in the hood. Contact the EH&S Coordinator if this is not possible. Solvent and waste containers will be kept closed unless transfers are being made.
- 5.4. The following is a list of the materials used in this method, which have a serious or significant hazard rating. NOTE: This list does not include all materials used in the method. The table contains a summary of the primary hazards listed in the SDS for each of the materials listed in the table. A complete list of materials used in the method can be found in the Reagents and Standards section. Employees must review the information in the SDS for each material before using it for the first time or when there are major changes to the SDS.

Material (1)	Hazards	Exposure Limit (2)	Signs and symptoms of exposure
Acetone	Flammable	1000 ppm-TWA	Inhalation of vapors irritates the respiratory tract. May cause coughing, dizziness, dullness, and headache.
Methanol	Flammable Poison Irritant	200 ppm-TWA	A slight irritant to the mucous membranes. Toxic effects exerted upon nervous system, particularly the optic nerve. Overexposure may include headache, drowsiness and dizziness. Methanol is a defatting agent and may cause skin to become dry and cracked. Skin absorption can occur: symptoms may be parallel to inhalation exposure. Irritant to the eyes.

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Hydrochloric acid	Corrosive Poison	5ppm-Ceiling	Inhalation of vapors can cause coughing, choking, inflammation of the nose, throat, and upper respiratory tract, and in severe cases, pulmonary edema, circulatory failure, and death. Can cause redness, pain, and severe skin burns. Vapors are irritating and may cause damage to the eyes. Contact may cause severe burns and permanent eye damage.
1 – Always add acid to water to prevent violent reactions.			
2 – Exposure limit refers to the OSHA regulatory exposure limit.			

- 5.5. All work must be stopped in the event of a known or potential compromise to the health and safety of a TestAmerica associate. The situation must be reported **immediately** to the EH&S Coordinator and the Laboratory Supervisor.
- 5.6. When operating the electric chopper or grinder, be sure to keep all aqueous liquids clear to prevent the risk of electrical shock from any spills.
- 5.7. Avoid inhalation of sample dust. Work in a ventilation hood when necessary to avoid accidental dust inhalation. Wear a dust mask or respirator if the ventilation hood does not provide sufficient dust protection. The Environmental Health and Safety Coordinator must approve any and all use of dust masks and/or respirators.
- 5.8. If there is any malfunction in the equipment de-energize and tag out.
- 5.9. All noise levels are below OSHA limits.
- 5.10. Training: Only trained personnel are permitted to use the equipment mentioned in this document. A list of trained personnel will be maintained with EH&S and QA.

6. EQUIPMENT AND SUPPLIES

- 6.1. Drying tray, plastic or aluminum
 - 6.1.1. Half cake sheet pan, Pactiv #614255, or equivalent
 - 6.1.2. Quarter sheet cake pan, Pactiv #604245, or equivalent

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- 6.2. Butcher Paper
- 6.3. Plastic wrap
- 6.4. Mortar and pestle
- 6.5. Automated mortar grinder
- 6.6. Food chopper, Black and Decker Handi chopper, or DeLonghi mini food processor, or equivalent
- 6.7. Coffee grinder, KitchenAid BCG100 or equivalent
- 6.8. Automated soil disaggregator
- 6.9. Wooden spatula: 6 in.
- 6.10. Stainless steel sieves: 1 mm, #10, #20, #60, ¼ inch
- 6.11. Electrolux Assistant 8 qt mixer, with dough hook or equivalent
- 6.12. Large cookie scoop with hand actuated ejector blade
- 6.13. Small cookie scoop with hand actuated ejector blade
- 6.14. Fluoropolymer scoop, not commercially available
 - 6.14.1. Construct by fastening the bottom half of a fluoropolymer bottle to a wooden handle with stainless steel screws.

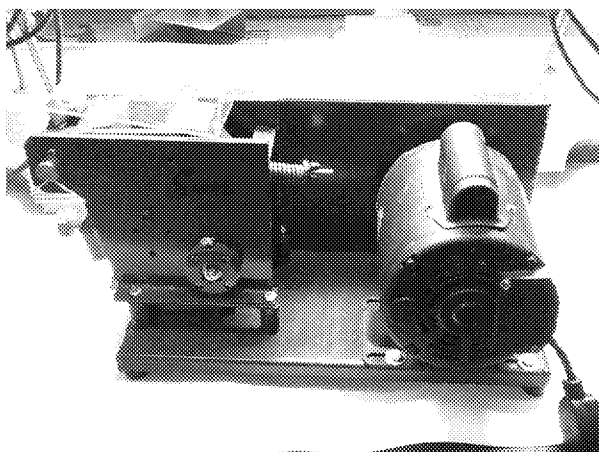
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- 6.15. Stainless steel pot with cover, Bain-Marie 6 qt. or equivalent
- 6.16. Wooden spoon, 12" long



*Picture of labware for multi-increment sample wet mixing process (Section 11.3.2.5):
large scoop, small scoop, wooden spoon, fluoropolymer scoop, stainless steel pot/cover*

- 6.17. Jaw crusher, Sepor Model 150 or equivalent



- 6.18. Freezer for sample storage.
- 6.19. 8 oz. Glass jars with lids
- 6.20. Top loading balance capable of weighing 100 g \pm 0.2 g.
- 6.21. Aluminum foil

7. REAGENTS AND STANDARDS

- 7.1. Deionized water: Reagent water must be produced by a Millipore DI system or equivalent. Reagent water must be free of the analytes of interest as demonstrated through the analysis of preparation blanks.
- 7.2. Methanol: VOC grade
- 7.3. Acetone: Pesticide grade

8. SAMPLE COLLECTION, PRESERVATION, AND STORAGE

- 8.1. Not applicable to this procedure. Sample collection, preservation, and storage are dependent on the requested test method and analytes.

9. QUALITY CONTROL

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- 9.1. Equipment processing blanks might be applicable for some particle size reduction or selection techniques. There is no single blank matrix that is suitable for all analytes, equipment or processes. The blank matrix should be chosen by the client/data user based on the advantages and limitations described below in Section 9. If no blank matrix is selected by the client, reagent water should be used as the default when possible as noted in Section 9.2.
- 9.2. Reagent water (or organic solvents) may be used to rinse the equipment surfaces. This liquid is then analyzed for the target analytes. This process is good at monitoring residue on equipment surfaces from previously processed samples. It does not evaluate the potential contribution of the equipment surface material to a solid sample. Reagent water can be used as a blank matrix in the following sections
- 9.3. Sand may be run through processing equipment and then analyzed to monitor for both sample carryover residue and contamination from equipment surface erosion. This process is most applicable for organic analytes. Sand always contains metals. These metals concentrations might be too high for suitable blank demonstrations. Also, the sand material is frequently more abrasive than soil and can over-estimate sample contamination due to erosion of the equipment surfaces.
- 9.4. Teflon boiling chips can be suitable to monitor the cleanliness of processing equipment surfaces. This option is between reagent water and sand regarding abrasion of the equipment surfaces. This material is generally non-detect at parts per billion concentrations for most organic and inorganic analytes. The Teflon material does not mimic the behavior of soil in the subsequent sample extraction or digestion procedures.
- 9.5. As an alternative to addition to equipment blanks, half of a field sample may be reprocessed with the goal of evaluating differing analyte concentrations between the single and double processed sample aliquots. The occurrence of significantly elevated analyte concentrations in the double processed sample can be a good indication of carryover or contamination due to equipment surface erosion. This is most applicable for monitoring metals contamination in soil grinders.

10. CALIBRATION AND STANDARDIZATION

- 10.1. Not applicable to this procedure.

11. PROCEDURE

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11.1. One-time procedural variations are allowed only if deemed necessary in the professional judgment of QA, operations supervisor, or designee to accommodate variation in sample matrix, chemistry, sample size, or other parameters. Any variation in procedure shall be completely documented using a Nonconformance Memo.

11.2. Any unauthorized deviations from this procedure must also be documented as a nonconformance with a cause and corrective action described.

11.3. Sample Preparation

11.3.1. The following sections describe a variety of procedures. The client/data user must select the procedure that is most appropriate for the sample matrix, analytes, and quality objectives. The selection of the procedure(s) can be made by the client in consultation with the appropriate TestAmerica representatives during project planning. There is no single default procedure that can be used in the absence of client selection.

11.3.2. Solid Sample Mixing and Particle Size Reduction Procedures

11.3.2.1. In jar mixing

The flowable sample is thoroughly stirred in the sample jar using a wooden blade.

11.3.2.2. Horizontal surface mixing

The sample is transferred to an aluminum tray or onto a sheet of paper and mixed with a wood blade.

11.3.2.3. Mortar and pestle

A mortar and pestle can be used for samples in the 1 to 8 mm particle size. The final reduced size is between 5 μ m and 8 mm. This process can be used for wet or dry, organic or inorganic substances.

Fill the mortar about 1/3 with sample. Grind and mix the sample with the pestle. Transfer the processed sample to a separate container, and repeat the grind-and-mix step with additional sample aliquots as needed.

An automated mortar grinder may be appropriate for larger samples. Set the automated mortar grinder to the desired size and allow to run until the sample has been completely ground. If the grinder is not equipped with an automated scraper/agitator, the sample may be mixed by hand. Be

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sure that the grinder has stopped moving completely before opening the lid.

11.3.2.4. Dry mixing (incremental sampling methodology support)

Air dry, disaggregate, sieve, mix

Line a standard aluminum tray with a disposable aluminum tray ($\frac{1}{2}$ or $\frac{1}{4}$ sheet depending on sample size). If aluminum is a metal of interest line the tray with butcher paper. Do not use butcher paper when TOCs are of interest.

Remove large rocks and vegetation unless client indicates otherwise. Do not decant the free water. Mix the sample and spread the entire sample in a thin layer in the tray. If necessary to perform a pre-dried total solids analysis, remove approximately 10 g. If the samples require ISM processing, an appropriate subsampling procedure should be followed, as described in the subsampling SOP.

Note: *it is not recommended to remove any portion of an ISM sample prior to drying and disaggregation. Any such removal from an ISM sample is considered a deviation and should be approved by the client.*

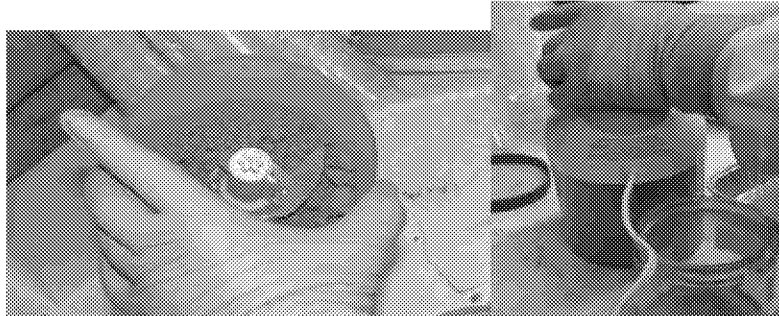
Place the tray in the ventilated drying rack for up to five days at room temperature.

Periodically, stir the sample to expose moist sample to the air.

The dried sample must be crushable, and not prone to sticking together. Typically this means that sediment samples will be less than 30% moisture content and soil samples less than 15% moisture content. However, it is not necessary to do a percent moisture analysis.

Disaggregate the dried sample to break up the dried sample clumps with a bladed chopper or equivalent, but do not grind the small pebbles into powder.

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If the volume capacity of the disaggregation equipment is large enough, transfer the whole sample to the disaggregator. If sample volume is too large, disaggregate the sample in sub-aliquots.

Pass the sample through a sieve to remove small pebbles and organic materials. Project specific guidelines will determine the sieve opening size. Typically, a #10 sieve is used for soils and a #20 sieve for sediments.



Combine all disaggregated sub-aliquots, and mix thoroughly by stirring, shaking or tumbling.

Air dry, disaggregate, mix

When the project objectives dictate that all small and medium sized materials be included in the final sample, use the procedure described in

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Section 0, but skip the sieving step in Section 0.

Collecting a representative subaliquot is more difficult when the sample has a variety of particle sizes. Refer to the subsampling SOP for recommended procedures. The one dimensional slabcake process is particularly applicable to dry, flowable samples with a wide range of particle sizes.

Other

Various permutations of soil disaggregation and sieving are possible depending on the needs of the project and can be accommodated but must be clearly defined in consultation with the client. These variations can include different sieve sizes and changing the order so that sieving is done prior to disaggregation. This would most likely be done to exclude a particular size of organic or rocky material.

11.3.2.5. Wet mixing (incremental sampling methodology support)

Weigh 100.0 +/- 0.2 g of each ¼ acre sub-sample. Stir the sample prior to and during the transfer from the original container to the weighing container. Record the weight to two decimal places.

If there are fewer than 40 sub-samples, increase the weight of sample proportionally. Calculate the new target weight as follows: target weight = 4000g/# sub-samples.

Exclude rocks, organic matter, and other debris from the weighed sub-sample by sieving through a ¼ inch sieve prior to weighing when such material is present.

The sieve may also be used to break up clay chunks. Sieving may be done either before or after weighing for this purpose. Use only when needed. Hard dry soil agglomerates should be broken up by hand crushing or chopping with a food chopper.

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If a sub-sample is over ½ gravel, expand the maximum particle size from ¼ inch to 1.8 inches.

Transfer the weighed (and sieved as needed) sub-sample aliquot to a stainless steel pot used to collect all weighed aliquots for that composite sample. The total mass of the composite sample will be at least 4 kg.

Repeat Section 0 until all sub-samples have been weighed and transferred to the compositing pot.

Assemble the heavy-duty mixer with mixing hook. The mixing hook must be inserted high in the mounting bracket to avoid dragging on the bottom of the bowl and allow small stones to pass under the hook. Transfer the entire composite sample from the covered stainless steel pot to the stainless mixing bowl.

Turn on mixer. Add reagent water to ensure complete mixing of the sample. The mixed sample will have uniformly distributed water, look visually homogeneous, and have the consistency of a thick paste. Do not add so much water as to form runny slurry. Use a wooden spoon to assist the mixing process by scraping mud from the sides and directing it to the center. The picture below shows the proper consistency. Mix for three minutes after the proper consistency has been achieved.



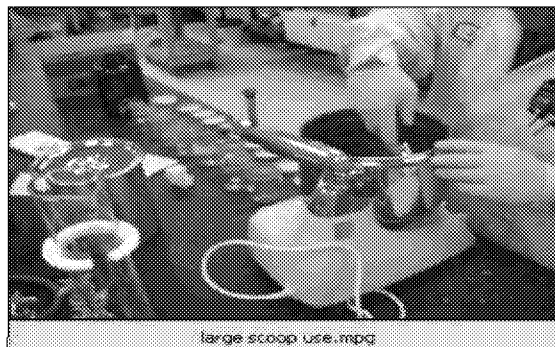
Record the volume of reagent water added and the total mixing time.

Scrape the mud from the wooden spoon and mixing hook.

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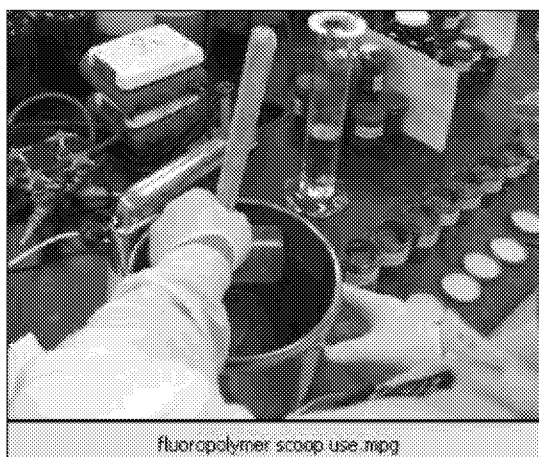
Split the composite sample between 5-15 250 mL jars, depending on project requirements.

Use the large scoop to dispense the equal aliquots of the composite sample--one aliquot into each of 8 oz. jars. Repeat the process if there is sufficient sample for a complete set of large scoop aliquots (per Section 11.3.2.5.8).



Once the volume of wet composite sample in the bowl is less than the determined set of large scoops, switch to aliquoting with the small scoop. Dispense an equal amount of small scoops--one into each 8 oz. jar.

Use the fluoropolymer scoop to scrape inside the bowl, and dispense this part of the sample with the small scoop. If there is insufficient sample to use full scoops, the use of replicate partial scoops is acceptable.



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When aliquoting is complete, the composite sample has been evenly distributed among the 8 oz. jars. Note: Multiple jars are used for various analyses, quality control, and archive purposes.

Mix the contents of each 250 mL jar and remove about 10 g from each of the first three jars for three total solids (percent moisture) analyses. The relative percent difference (RPD) between the first two must not exceed 8%.

If the RPD exceeds 8%, repeat the total solids analysis on two fresh aliquots from the first two jars.

If the RPD still exceeds 8%, repeat the mixing process in Sections 0 to 0

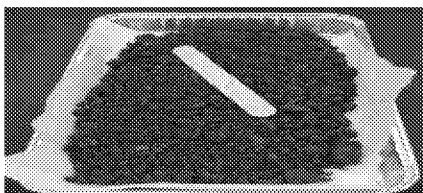
Wipe the top of the jar to remove excess sample and install the cap. Transport all sample containers to Sample Receiving.

Discard the wooden spoon and spatulas. Wash the mixer bowl, hook and scoops using soap and water. Rinse with tap and reagent water.

11.3.2.6. Soil fractionation for lead analysis

Add sample ID label to outside of a disposable aluminum ($1/2$ or $1/4$ sheet depending on sample size). Line with butcher paper if aluminum is also an analyte of interest.

Transfer the entire soil sample to a tray. Remove large rocks and vegetation. Mix the sample, and remove approximately 10g for total solids analysis. Spread all remaining sample in the tray. Spreading the sample in a thin layer speeds drying and reduces the formation of hard clay chunks.



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Place the tray in the ventilated drying rack for up to five days.

Periodically, stir the sample if needed to expose moist sample to the air.

Wet samples with high clay content tend to form large hard clay chunks. To reduce the formation of these hard “bricks”, use the bottom of a clean disposable beaker to gently crush the semi-dried sample before drying is complete.

Allow the sample to dry until crumbly.

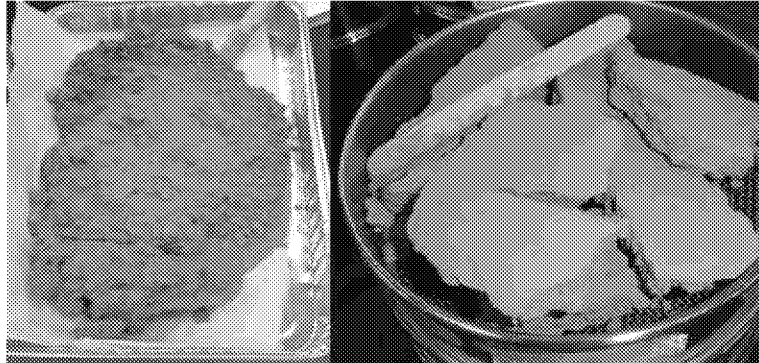
Assemble 8-inch sieve stack. The order from the bottom of the stack is collection pan, #60 sieve, and #10 sieve. Transfer sample ID label from drying pan to sieve stack.

Transfer dried soil to the #10 sieve at the top of the sieve stack. If fine particulates are present, use sufficient ventilation to prevent the analyst from inhaling the dust. Install sieve cover.



Some wet clay samples will dry into a hard “brick” or “pancake”. Break by hand until the chunks are small enough to fit into the top sieve and proceed. This brick-forming tendency can be reduced by gently breaking the semi-moist chunks during the drying process of Section 0. Note that only this gentle crushing is permitted by the reference method. Samples that are being analyzed as soil fractions for lead should not be subjected to aggressive disaggregation such as the use of a soil disaggregator or coffee grinder.

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Place the sieve stack on the shaker table and secure. Run the shaker on high until most of the sample has passed through the #10 sieve (10 minutes to 2 hours depending on sample volume and size of soil agglomerates). The high shaker setting produces approximately 180 cycles/min with 4 cm travel on the back and forth shaking.



Note: Some hard clay samples may have a large percentage of soil agglomerates that do not crumble and pass through the #10 sieve. Do not extend shaking beyond two hours without conferring with the client.

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Record the weights of the three fractions--large (did not pass through the #10 sieve), coarse (passed through #10 sieve, but not the #60 sieve), and fine (passed through both #10 and #60 sieves).



To weigh each fraction, place the corresponding sieve or pan on the balance, press "Tare", transfer the fraction, and place sieve or pan back on the balance. The weight of the fraction will read as a negative value.

Discard the large fraction. Mix the fine fraction. Remove approximately 10g for total solids analysis. If required, perform splitting and/or subsampling in accordance with ISM procedures. See the subsampling SOP for further information.

If the coarse fraction is to be analyzed separately, mix the coarse fraction and remove approximately 10g for total solids analysis. The coarse fraction should be ground in a

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mortar and pestle (Section 11.3.2.3) prior to removing the aliquot for metals digestion.

The combination of coarse and fine fractions is defined as the "total". If the "total" is to be measured, weigh 1/10 of the coarse fraction and 1/10 of the fine fraction. Combine, mix, and remove approximately 10g for total solids analysis.

Bottle coarse, fine, and "total"(if needed) fractions for metals analysis.

For Michigan samples, the "total" result is calculated from a weighted average of the results from the fine and coarse fractions.

$$\text{Total Lead} = [(A \times W_f) + (B \times W_c)] / (W_f + W_c)$$

Where:

A = Concentration of Lead (mg/Kg dry) in fine fraction

B = Concentration of Lead (mg/Kg dry) in coarse fraction

W_f = Total weight of fine fraction

W_c = Total weight of coarse fraction

Wash the sieves with soap, tap water, and deionized water. Dislodge objects from the screen with a green scratch pad, wooden tongue blade or small screwdriver, as necessary. Dry sieves in a low-heat oven or air-dry at ambient temperature over night, depending how soon they will be needed.

11.4. Sample Analysis

11.4.1. Not applicable to this procedure.

11.5. Analytical Documentation

11.5.1. Record all analytical information in LIMS, including any corrective actions or modifications to the method.

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- 11.5.2. Record all standards and reagents in the LIMS Reagents module. All standards and reagents are assigned a unique number for identification.

12. DATA ANALYSIS AND CALCULATIONS

- 12.1. Not applicable to this procedure.

13. METHOD PERFORMANCE

- 13.1. The Group/Team Leader has the responsibility to ensure this procedure is performed by an associate who has been properly trained in its use and has the required experience.

14. POLLUTION PREVENTION

- 14.1. It is TestAmerica's policy to evaluate each method and look for opportunities to minimize waste generated (i.e., examine recycling options, ordering chemicals based on quantity needed, preparation of reagents based on anticipated usage, and reagent stability). Employees must abide by the policies in Section 13 of the Corporate Environmental Health and Safety Manual (CW-E-M-001) for "Waste management and Pollution Prevention".

15. WASTE MANAGEMENT

- 15.1. All waste will be disposed of in accordance with Federal, State and Local regulations. Where reasonably feasible, technological changes have been implemented to minimize the potential for pollution of the environment. Employees will abide by this method and the policies in Section 13 of the Corporate Environmental Health and Safety Manual (CW-E-M-001) for "Waste Management and Pollution Prevention".
- 15.2. Waste Streams Produced by the Method
- 15.2.1. Used wood spatulas, aluminum sheets, butcher paper; discard in solid waste.
- 15.2.2. Dry ice is to be melted in the sink.
- 15.2.3. Acetone is to be disposed of in an appropriately labeled flammable waste barrel.
- 15.3. Laboratory personnel assigned to perform hazardous waste disposal procedures must have a working knowledge of the established procedures and practices of TestAmerica. They must have training on the hazardous waste disposal practices upon initial assignment to these tasks, followed by annual refresher training.

16. REFERENCES

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16.1. References

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- 16.1.3. U.S. EPA, 2003. Superfund Lead-Contaminated Residential Sites handbook. OSWER 9285.7-50. August. Available on-line at: <http://www.epa.gov/superfund/programs/lead/products/handbook.pdf>
- 16.1.4. Michigan DEQ SOP #213 Revision #1, Nov. 9, 2004, Soil Fractions Preparation for Lead Analysis (Creating Total, Fine and Coarse Soil Samples).
- 16.1.5. ASTM D 6323-12, Laboratory Subsampling of Media Related to Waste Management Activities, 2012
- 16.1.6. ITRC Incremental Sampling Methodology, Available online at: <http://www.itrcweb.org/ism-1/>
- 16.1.7. TestAmerica Canton Quality Assurance Manual (QAM), current version
- 16.1.8. TestAmerica Corporate Environmental Health and Safety Manual, CW-E-M-001, and TestAmerica Canton Facility Addendum and Contingency Plan, current version
- 16.1.9. Corporate Quality Management Plan (CQMP), current version
- 16.1.10 Revision History

Historical File:				

16.2. Associated SOPs and Policies, current version

- 16.2.1. QA Policy, QA-003
- 16.2.2. Glassware Washing, NC-QA-014

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17. MISCELLANEOUS (TABLES, APPENDICES, ETC.)

17.1. Reporting limits

17.1.1. Not applicable to this procedure

17.2. Method deviations – None